AMENDMENTS TO THE CLAIMS

1. (Currently amended) A communication method, comprising the steps of:

(a) receiving an information bearing OFDM signal at a receiver, where information in the information bearing OFDM signal is carried by each sub-carrier of a set of sub-carriers allocated to the receiver;

(b) constructively combining the sub-carriers at the receiver to produce a combined signal, wherein M sub-carriers are in the set of sub-carriers and constructively combining the sub-carriers comprises the steps of:

(i) sampling the information bearing OFDM signal to generate a sampled signal having a spectrum and being formed of samples;

(ii) decimating the sampled signal by retaining each Mth sample and discarding each other sample to produce a decimated signal formed of M frequency scaled and frequency shifted copies of the spectrum of the sampled signal; and

(iii) recovering the combined signal by accumulating the samples at a selected frequency; and

(c) extracting the information from the combined signal.

2. (Canceled)

3. (Currently amended) The communication method of ~~Claim 2~~ Claim 1 in which the selected frequency is zero and accumulating the samples comprises summing the samples.

4. (Currently amended) The communication method of ~~Claim 2~~ Claim 1 in which the selected frequency is the Nyquist frequency, the samples include alternating odd and even samples and accumulating the samples comprises the step of finding the difference between the sum of the odd samples and the sum of the even samples.

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5. (Original) The communication method of Claim 1 further comprising transmitting the information bearing OFDM signal from a transmitter to the receiver, wherein in transmitting the information bearing OFDM signal comprises phase rotating the sub-carriers so that the sub-carriers add constructively at the receiver.

6. (Previously presented) The communication method of Claim 5 in which each sub-carrier is associated with a corresponding channel, and each corresponding channel has a gain, and the gain of each corresponding channel has a magnitude, and in which transmitting the information bearing OFDM signal further comprises weighting each sub-carrier with the magnitude of the channel corresponding to the sub-carrier.

7. (Original) An OFDM transmitter, comprising:

a source of OFDM data packets;

a code table having as output code symbols whose frequency spectrum contains one or more OFDM sub-carriers; and

a multiplier connected to each of the source of OFDM data packets and the code table for multiplying the data packets by the code symbols.

8. (Original) The OFDM transmitter of Claim 7 in which the code symbols form a number of repetitions of a base code sequence.

9. (Previously presented) The OFDM transmitter of Claim 8 in which the base code sequence comprises plural base codes, each base code has a base code spectrum, each spectrum has a magnitude, and the base code sequence is selected so that the magnitude of each base code spectrum is the same at each of the OFDM sub-carriers.

10. (Original) The OFDM transmitter of Claim 8 further comprising:

a digital to analog converter connected to receive output from the multiplier; and

a low pass filter connected to receive output from the digital to analog converter.

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11. (Original) The OFDM transmitter of Claim 10 further comprising an RF converter connected to receive output from the low pass filter.

12. (Original) An OFDM receiver for receiving an information bearing OFDM signal transmitted over plural OFDM sub-carriers, comprising:

an OFDM sampler having samples as output;

a decimator connected to receive the samples from the OFDM sampler and retain each Mth sample while discarding all other samples;

an accumulator connected to receive each Mth sample from the decimator and having as output summed decimated samples corresponding to a constructive combination of the OFDM sub-carriers.

13. (Original) A wireless terminal incorporating an OFDM transmitter and an OFDM receiver, the OFDM transmitter comprising:

a source of OFDM data packets;

a code table having as output code symbols whose frequency spectrum contains one or more OFDM sub-carriers, the code symbols being formed from a number of repetitions of a base code sequence;

a multiplier connected to each of the source of OFDM data packets and the code table for multiplying the data packets by the code symbols;

a digital to analog converter connected to receive output from the multiplier;

a low pass filter connected to receive output from the digital to analog converter; and

an RF converter connected to receive output from the low pass filter.

14. (Previously presented) The wireless terminal of Claim 13 in which the base code sequence comprises plural base codes, each base code has a base code spectrum, each spectrum

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has a magnitude, and the base code sequence is selected so that the magnitude of each base code spectrum is the same at each of the OFDM sub-carriers.

15. (Original) The wireless terminal of Claim 13 in which the OFDM receiver comprises:

an OFDM sampler having samples as output;

a decimator connected to receive the samples from the OFDM sampler and retain each Mth sample while discarding all other samples;

an accumulator connected to receive each Mth sample from the decimator and having as output summed decimated samples corresponding to a constructive combination of the OFDM sub-carriers.

16. (Previously presented) A method of receiving an information bearing OFDM signal transmitted from multiple terminals using sub-carriers allocated to the terminals, the sub-carriers each being transmitted over a corresponding radio channel, wherein each terminal encodes the information bearing OFDM signal with code symbols that have the effect of rotating the phase of the information bearing OFDM signal, the method comprising the steps of:

for each terminal, recovering the values of each sub-carrier allocated to the terminal with a discrete Fourier transform;

phase rotating the sub-carriers to remove phase shifts caused by the radio channel corresponding to the sub-carrier and the code symbols;

weighting each sub-carrier with the magnitude of the corresponding radio channel; and

constructively combining the sub-carriers allocated to the terminal.

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